1 : 6 BATTER WALL

Foundation pressure in tons per sq. ft.

TYPE	LOADING CASE	WALL HEIGHT															
		2'-6"	4'-2"	5'-10"	7'-6"	9'-2"	10'-10"	12'-6"	14'-2"	15'-10"	17'-6"	19'-2"	20'-10"	22'-6"	24'-2"	25'-10"	27'-6"
I	A	0.3	0.5	0.9	1.3												
	B	0.6	0.7	0.8	1.4	1.7											
	C	0.4	0.6	0.7	0.8	0.9											
II	A	0.5	0.5	0.6	0.7	1.0	1.3	1.7	2.2								
	B	0.7	0.9	0.9	1.2	1.4	1.6	2.6	3.0								
	C	0.5	0.7	0.8	1.0	1.1	1.2	1.2	1.5								
III-I	A					1.0	1.2	1.5	1.8	2.2							
	B					1.2	1.7	2.0	2.8	3.2	4.4						
	C					0.8	1.0	1.2	1.5	1.8	2.2						
III-II	A							1.6	2.0	2.4							
	B							2.6	3.0	3.3	4.6						
	C							1.4	1.7	2.0	2.4						
IV	A									1.9	2.2	2.6	3.0				
	B									3.0	3.3	4.3	4.8	6.2			
	C									1.8	2.1	2.4	2.8	3.2			

VERTICAL WALL

Foundation pressure in tons per sq. ft.

WALL HEIGHT											
2'-6"	4'-2"	5'-10"	7'-6"	9'-2"	10'-10"	12'-6"	14'-2"	15'-10"	17'-6"	19'-2"
0.4	0.7	1.2								
0.4	0.7									
0.3	0.4	0.8	1.2	1.9						
0.3	0.5	0.8	1.1	1.5	2.1					
0.5	0.5	1.0								
0.4	0.4	0.6	0.9	1.3	1.8	2.4				
				1.2	1.6	2.0	2.6			
				1.1	1.5	1.9	2.5	3.2	4.2	
						2.0	2.6			
						1.9	2.5	3.2	4.2	
								2.4	2.9	3.6
								2.5	3.0	3.7

TYPE	LOADING CASE	15'-10"	17'-6"	19'-2"	20'-10"	22'-6"	24'-2"	25'-10"	27'-6"	29'-2"	30'-10"	32'-6"	34'-2"	35'-10"	37'-6"	39'-2"	40'-10"
V	A	1.6	1.8	2.0	2.3	2.7	3.0	3.4	3.9								
	B	2.8	3.1	3.3	4.2	4.6	5.6	6.1	7.5								
	C	1.5	1.8	2.0	2.3	2.6	3.0	3.4	3.9								
VI	A		1.7	1.9	2.1	2.4	2.7	3.0	3.4	3.8	4.2						
	B		3.0	3.2	3.5	4.3	4.6	5.6	6.0	7.2	7.7						
	C		1.7	1.9	2.2	2.4	2.7	3.1	3.4	3.8	4.3						
VII	A					2.2	2.5	2.7	3.0	3.3	3.7	4.0	4.4	4.9			
	B					4.1	4.4	4.8	5.6	6.0	7.0	7.5	8.7	9.4			
	C					2.4	2.6	2.9	3.2	3.6	3.9	4.3	4.8	5.2			
VIII	A									3.2	3.4	3.7	4.1	4.4	4.8	5.2	
	B									5.8	6.2	7.0	7.5	8.6	9.2	9.8	
	C									3.5	3.8	4.2	4.5	4.9	5.3	5.8	

15'-10"	17'-6"	19'-2"	20'-10"	22'-6"	24'-2"	25'-10"	27'-6"	29'-2"
2.0	2.3	2.7	3.2	3.8				
2.1	2.6	3.0	3.6	4.2	5.0	6.1	7.4	
	2.1	2.4	2.8	3.2	3.7	4.3	5.1	
	2.3	2.7	3.2	3.7	4.3	5.0	5.8	6.9
				2.8	3.2	3.6	4.0	4.6
				3.3	3.7	4.2	4.8	5.5
								4.0
								4.8

TYPE	LOADING CASE	29'-2"	30'-10"	32'-6"	34'-2"	35'-10"	37'-6"	39'-2"	40'-10"	42'-6"	44'-2"	45'-10"	47'-6"	49'-2"	50'-10"	52'-6"	54'-2"
IX	A	2.9	3.1	3.4	3.6	4.0	4.3	4.6	5.0	5.4							
	B	5.4	5.8	6.2	6.9	7.4	8.3	8.8	9.9	10.5							
	C	3.2	3.5	3.8	4.1	4.5	4.8	5.2	5.7	6.1							
X	A	2.6	2.8	3.0	3.3	3.5	3.8	4.1	4.4	4.7	5.1	5.5	5.9				
	B	4.8	5.1	5.8	6.1	6.8	7.2	8.0	8.4	9.3	9.8	10.3	11.5				
	C	3.0	3.2	3.5	3.8	4.1	4.4	4.7	5.1	5.4	5.8	6.3	6.7				
XI	A								4.4	4.7	5.0	5.3	5.7	6.1	6.5		
	B								8.3	8.7	9.5	10.0	11.1	11.7	12.9		
	C								5.2	5.5	5.9	6.3	6.7	7.1	7.6		
XII	A										4.8	5.1	5.4	5.7	6.1	6.5	6.9
	B										9.1	9.6	10.4	10.9	11.9	12.6	13.8
	C										5.7	6.1	6.4	6.8	7.2	7.7	8.1

29'-2"
3.6
4.4
3.3
4.1

DIST.	COUNTY	ROUTE	MILE POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. Exp. CIVIL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

DESIGN NOTES

1. **WALL BASE IN EMBANKMENT:** A minimum depth of 5 feet of embankment at 95% relative soil compaction is required below the base of all walls in order to constitute an embankment condition. When the foundation pressure is between 2.5 and 4.0 tons/sq ft, embankment below the wall shall consist of "Structure Backfill" material as set forth in Section 19-3.06 of the Standard Specifications. The limits of relative compaction (95%) shall be as set forth in Section 19-5.03 of the Standard Specifications.

2. **WALL BASE IN ORIGINAL GROUND:** Allowable soil pressure at toe of wall shall be determined by the foundation site investigation. Walls that are to retain cut slopes shall be designed for lateral and toe pressure determined from site investigation data. Overall stability of slope with wall in place must be analyzed. If original ground slopes away from toe of wall, reduction in allowable bearing capacity due to slope must be considered. Walls should not be founded in original ground having an allowable bearing capacity of less than 1.5 tons/sq ft. Consideration should be given to removal and replacement of unsuitable material with "Structure Backfill" material as set forth in Section 19-3.06 of the Standard Specifications. The limits of relative compaction (95%) shall be as set forth in Section 19-5.03 of the Standard Specification.

3. **SOIL PARAMETERS:**

Backfill - $\emptyset = 34^\circ$

$\delta = 22.7^\circ$

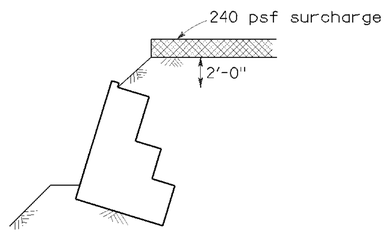
$\gamma = 120$ pcf

Foundation - $\emptyset = 34^\circ$

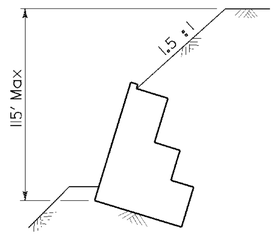
Lateral earth pressure determined by Coulomb's theory.

The maximum allowable soil bearing capacity for walls founded in embankment is 4.0 tons/sq ft.

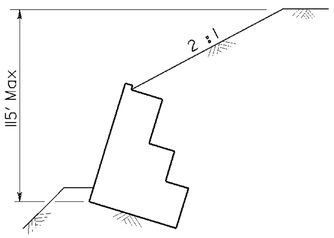
Note: Heavy line in table indicates the maximum allowable wall height for a particular wall type and loading case.



CASE A



CASE B



CASE C

DETAIL OF DESIGN LOADING CASES

STANDARD DRAWING

RELEASE DATE 12/01/06 | FILE NO. xs12-010-5e

DESIGN	BY W.BAKER	CHECKED O.HOR	RELEASED BY	
DETAILS	BY R.YEE	CHECKED O.HOR		
SUBMITTED	BY O.HOR	DRAWING NO. DATE 09/01/06	OFFICE CHIEF	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

CU
EA

BRIDGE NO.

MILE POST

REINFORCED CONCRETE CRIB WALL SHT 5 OF 5

DESIGN DATA - TYPES I THRU XII

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET OF

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DATE PLOTTED = 06 DEC 2006 TIME PLOTTED = 11:56

USERNAME = rwu

xs12 010 5e.dgn